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(54) **METHOD OF SELECTING A FREQUENCY BAND OF AN OUTPUT AUDIO SIGNAL BY A COMPUTER**

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H04R 5/02	(2006.01)
G06F 17/00	(2006.01)

(52) **U.S. Cl.** **381/99**; 381/98; 381/123; 381/58; 381/59; 381/300; 381/306; 700/94

(58) **Field of Classification Search** 381/98–99, 381/123, 58–59, 103, 300, 306–307; 700/94; 361/683, 686

See application file for complete search history.

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(57) **ABSTRACT**

A computing device allows selective output of audio signals within a frequency band. The computing device has a main system having an audio signal generator generating audio signals, a main audio outputting unit attached to the main system and outputting the generated audio signals, an auxiliary system connected to the main system and receiving the audio signals generated by the audio signal generating unit, and an auxiliary audio outputting unit attached to the auxiliary system and outputting the audio signals received in the auxiliary system A switching unit controls the audio signals to pass through a plurality of selectable filters filtering the audio signals within respective frequency bands and to supply the selected filtered audio signals to the main audio outputting unit, and to the auxiliary audio outputting unit, depending upon whether the auxiliary system is connected to the main system.

14 Claims, 3 Drawing Sheets

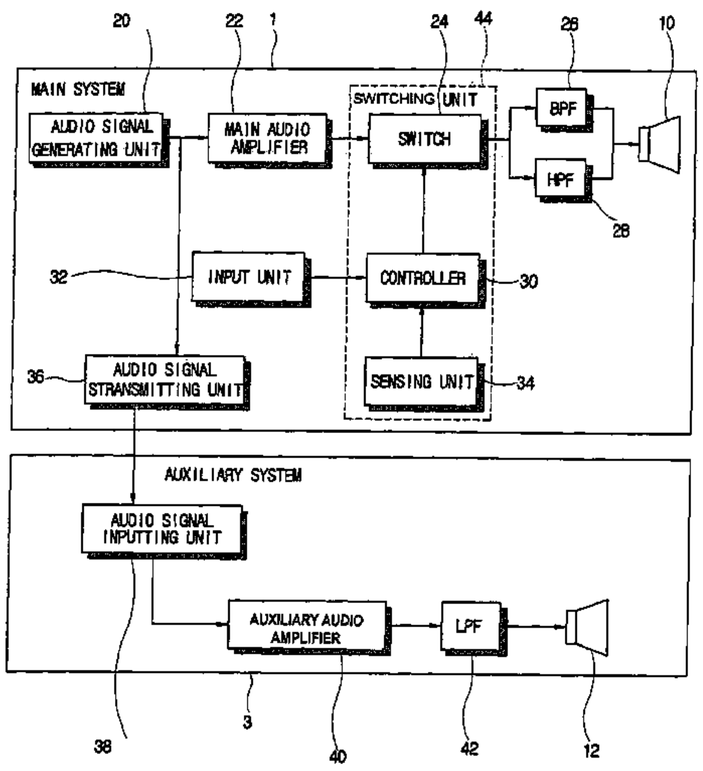


FIG. 1

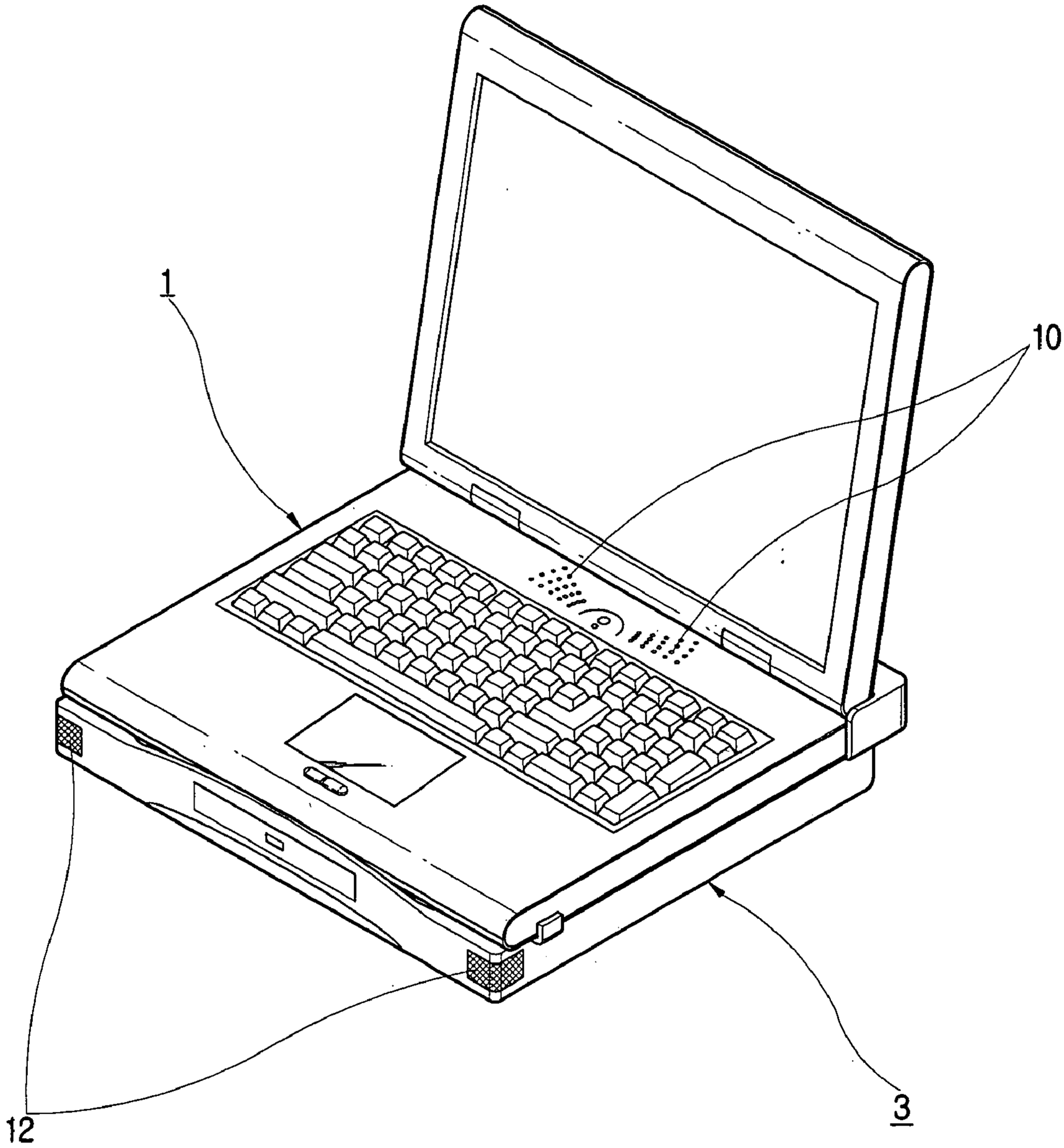


FIG. 2

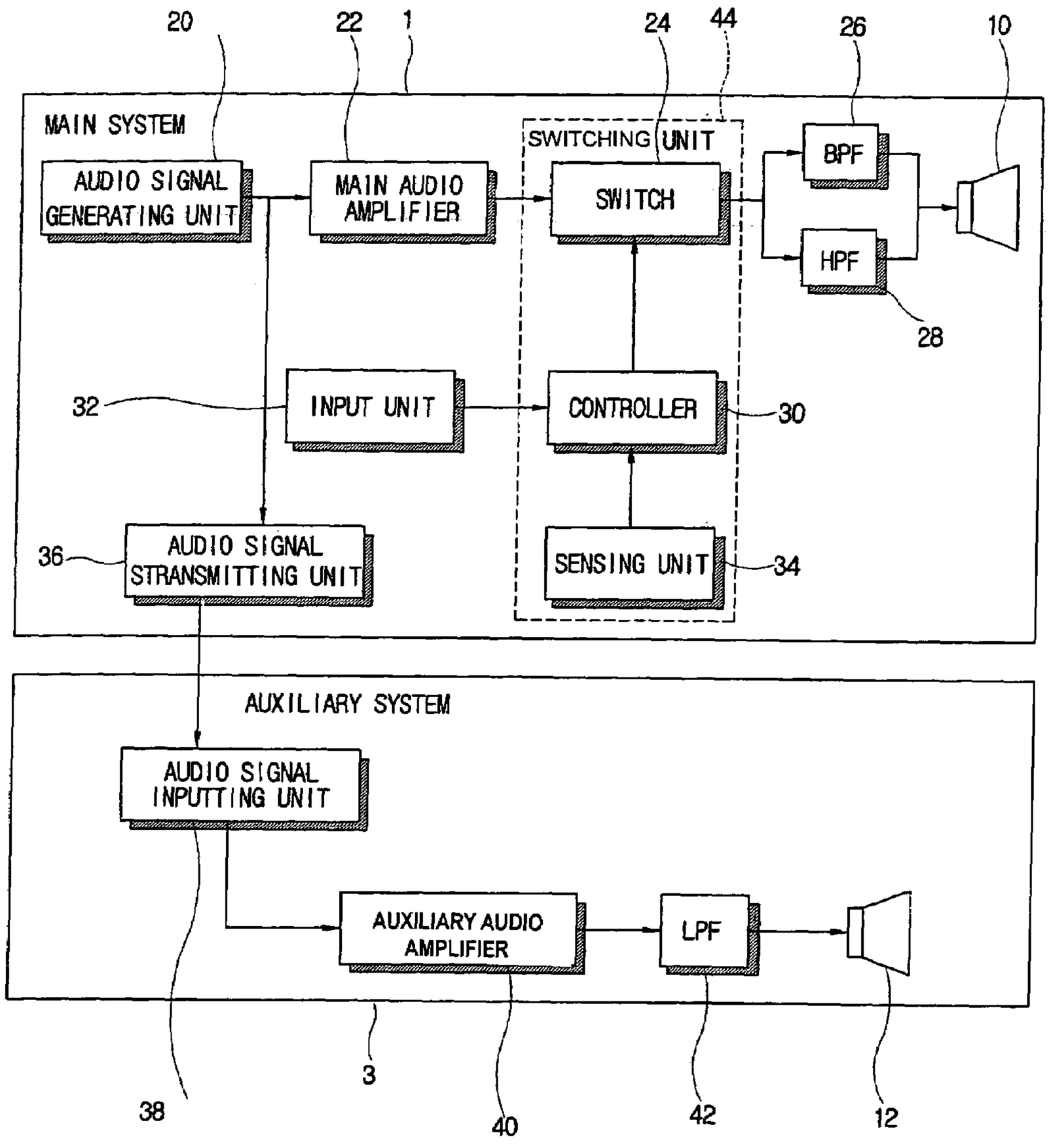
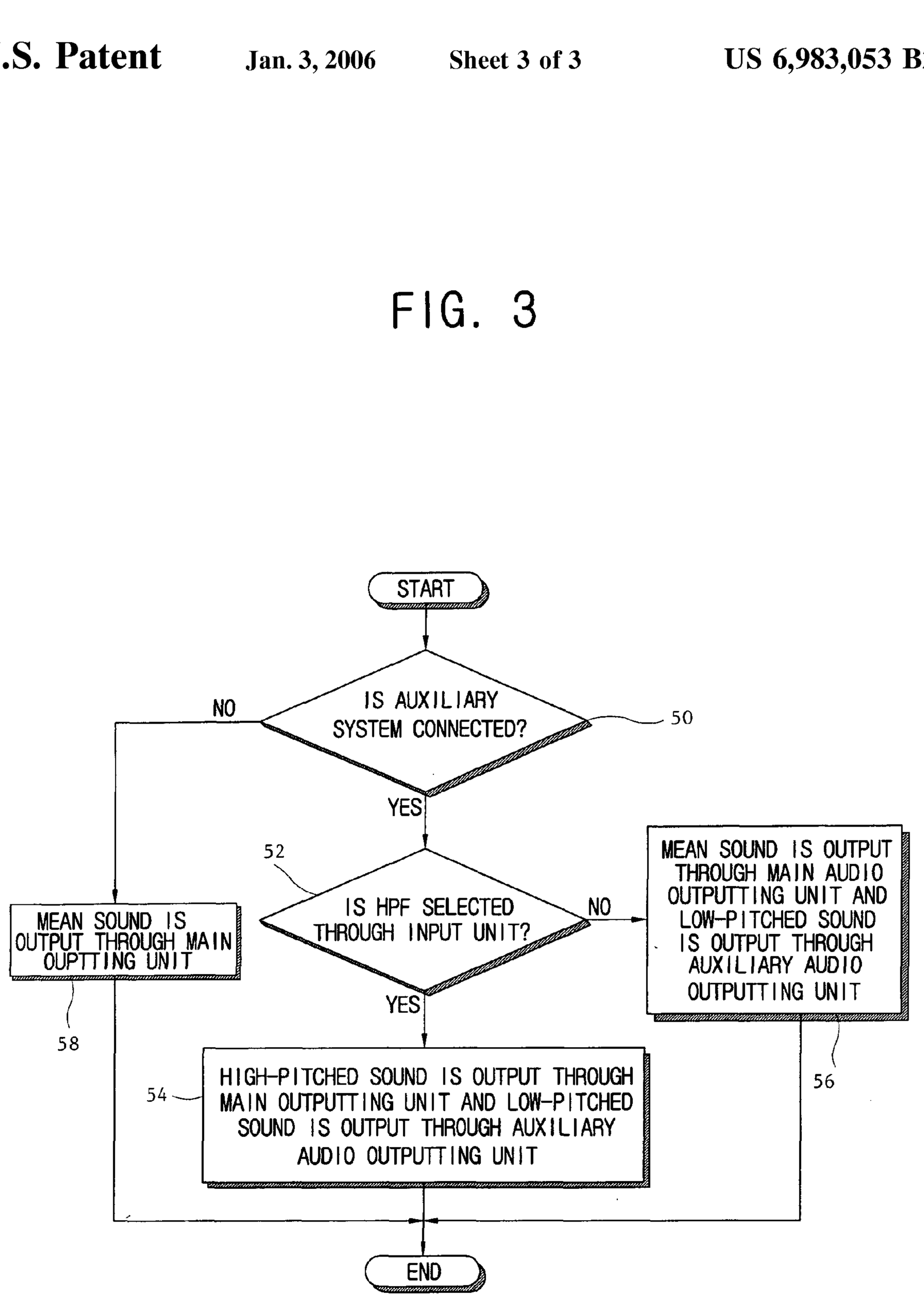

20
22
1
24
44
26
10
MAIN SYSTEM
AUDIO SIGNAL GENERATING UNIT
MAIN AUDIO AMPLIFIER
SWITCHING UNIT
SWITCH
BPF
HPF
28
32
INPUT UNIT
CONTROLLER
30
36
AUDIO SIGNAL STRANSMITTING UNIT
SENSING UNIT
34
AUXILIARY SYSTEM
AUDIO SIGNAL INPUTTING UNIT
AUXILIARY AUDIO AMPLIFIER
LPF
3
38
40
42
12

FIG. 3


START
IS AUXILIARY SYSTEM CONNECTED?
NO
YES
50
IS HPF SELECTED THROUGH INPUT UNIT?
52
NO
YES
MEAN SOUND IS OUTPUT THROUGH MAIN OUPTTING UNIT
58
MEAN SOUND IS OUTPUT THROUGH MAIN AUDIO OUTPUTTING UNIT AND LOW-PITCHED SOUND IS OUTPUT THROUGH AUXILIARY AUDIO OUTPUTTING UNIT
56
HIGH-PITCHED SOUND IS OUTPUT THROUGH MAIN OUTPUTTING UNIT AND LOW-PITCHED SOUND IS OUTPUT THROUGH AUXILIARY AUDIO OUTPUTTING UNIT
54
END

METHOD OF SELECTING A FREQUENCY BAND OF AN OUTPUT AUDIO SIGNAL BY A COMPUTER

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of Korean Patent Application No. 2002-83347, filed Dec. 24, 2002, in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates, in general, to a computer system and, more particularly, to a computer system wherein a user can selectively output audio signals within a frequency band desired by him.

2. Description of the Related Art

These days, a computer system can process information composed of a mixture of a variety of medias, such as voices, characters, graphics, images, etc., in addition to word-processing or computing. In particular, a number of computer systems are equipped with sound cards outputting sounds. For example, the sound card converts sound data from the CD-ROM into audio data and outputs the audio data through the speaker.

Among the computer systems, to cope with the users' requests to make the main system of a notebook computer slimmer, a docking station to be connected to the main system has been widely used. Generally, a docking station is a hardware frame and a set of electrical connection interfaces that enable a notebook computer to effectively serve as a desktop computer. The docking station interfaces typically allow the notebook computer to communicate with a local printer, larger storage or backup drives, and possibly other devices that are not usually taken along with a notebook computer.

Recently, as the computer users have focused their interests in multimedia, there has been disclosed a docking station expanding sound output functions. An audio amplifier is installed within the docking station, and a low-pitched sound speaker is attached to the docking station, whereby the user can hear low-pitched sounds. However, in the conventional notebook computer system, the user can only hear a mean sound at the main system of the conventional notebook computer.

Next, an example process of outputting an audio sound from the notebook computer on which the docking station is mounted will be described in brief. For example, in the notebook computer, the sound data from a CD-ROM is converted into analog audio signals through a DAC (digital-to-analog converter) chip integrated within the sound card. The converted audio signals are amplified through an audio amplifier and then output to the speaker. Here, the speaker installed in the main system of the notebook computer is constructed to pass main frequency ingredients of the audio signals, thereby allowing the mean sound to be output at the main system.

Further, if the docking station is connected, audio signals can be transmitted to the docking station through a docking connector, and the transmitted audio signals are amplified through the audio amplifier of the docking station and output to the speaker installed in the docking station. Since a low-pitched sound speaker having no limitation in size and being large in diameter can be installed in the docking station, sounds of low frequency have generally been output at the docking station. However, this computer system configuration still has a limitation of outputting sounds of high frequency, even though the sound functions are supposed to have been expanded by the docking station. Further, the computer system does not allow selection of audio signal output according to a frequency band and/or controlling audio signal output location in the computer system.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a computer system wherein audio signals within a frequency band desired by a user, including a high-pitched sound as well as a low-pitched sound and a mean sound, can be output in a selective manner.

Additional aspects and/or advantages of the invention will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the invention.

The present invention can be achieved by providing a computer system comprising a main system having an audio signal generating unit generating audio signals, and a main audio outputting unit outputting the audio signals generated in the audio signal generating unit; and an auxiliary system, having an auxiliary system body, connected to the main system, receiving the audio signals generated from the audio signal generating unit, and an auxiliary audio outputting unit attached to the auxiliary system body, comprising a first filter provided in the main system, filtering the audio signals generated in the audio signal generating unit and supplying only a first frequency band as designated to the main audio outputting unit; a second filter provided in the auxiliary system, filtering the audio signals generated in the audio signal generating unit and supplying a second frequency band different from the first frequency band to the auxiliary audio outputting unit; a third filter provided in either of the main system or the auxiliary system, filtering the audio signals generated from the audio signal generating unit and supplying a third frequency band different from the first and the second frequency bands to either of the main audio outputting unit or the auxiliary audio outputting unit; and a switching unit allowing the audio signals to selectively pass through either of the first filter or the third filter and be supplied to the main audio outputting unit, and/or otherwise to selectively pass through either of the second filter or the third filter and be supplied to the auxiliary audio outputting unit, depending upon whether the auxiliary system is connected to the main system.

According to an aspect of the invention, the first filter is comprised of a band pass filter (BPF), the second filter is comprised of a low pass filter (LPF) and the third filter is comprised of a high pass filter (HPF).

According to an aspect of the invention, the switching unit comprises a switch allowing the audio signals to selectively pass through either of the first or third filters and be supplied to the main audio outputting unit, and/or otherwise to allow the audio signals to selectively pass through either of the second or third filters and be supplied to the auxiliary audio outputting unit; a sensing unit sensing whether the auxiliary system has been connected to the main system; and a controller controlling the switch so that the third filter is connected to either of the main audio outputting unit or the auxiliary audio outputting unit, if determined that the auxiliary system has been connected to the main system according to a connection sensing signal by the sensing unit.

According to an aspect of the invention, the controller controls the switch so that the third filter is connected to either of the main audio outputting unit or the auxiliary audio outputting unit, when an audio signal selection input as designated is provided in a state indicating that the auxiliary system is connected to the main system according to the connection sensing signal by the sensing unit.

According to an aspect of the invention, the controller is a logic element locally operating the connection sensing signal and a selection input signal generated according to the selection input.

According to an aspect of the invention, the audio signal selection is input via at least one of keyboard hot keys, a CMOS setup, and selection buttons.

The present invention may be also achieved by providing a computer system comprising a main system having an audio signal generating unit generating audio signals, and a main audio outputting unit outputting the audio signals generated in the audio signal generating unit; and an auxiliary system, having an auxiliary system body, connected to the main system, receiving the audio signals generated from the audio signal generating unit, and an auxiliary audio outputting unit attached to the auxiliary system body, comprising a first filter provided in the main system, filtering the audio signals generated in the audio signal generating unit and supplying only a first frequency band as designated to the main audio outputting unit; a second filter provided in the auxiliary system, filtering the audio signals generated in the audio signal generating unit and supplying a second frequency band different from the first frequency band to the auxiliary audio outputting unit; a third filter provided in the main system, filtering the audio signals generated from the audio signal generating unit and supplying a third frequency band different from the first and the second frequency bands to the main audio outputting unit; and a switching unit allowing the audio signals to selectively pass through either of the first filter or the third filter and be supplied to the main audio outputting unit, depending upon whether the auxiliary system is connected with the main system.

According to an aspect of the invention, the first filter is comprised of a band pass filter (BPF), the second filter is comprised of a low pass filter (LPF) and the third filter is comprised of a high pass filter (HPF).

According to an aspect of the invention, the switching unit comprises a switch allowing the audio signals to selectively pass through either of the first or third filters and be supplied to the main audio outputting unit; a sensing unit sensing whether the auxiliary system has been connected to the main system; and a controller controlling the switch so that the third filter is connected to the main audio outputting unit, if determined that the auxiliary system has been connected to the main system according to a connection sensing signal by the sensing unit.

According to an aspect of the invention, the controller controls the switch so that the third filter is connected to the main audio outputting unit, when a selection input as designated is provided in a state that the auxiliary system is connected to the main system according to the connection sensing signal by the sensing unit.

According to an aspect of the invention, the controller is a logic element locally operating the connection sensing signal and a selection input signal generated according to the selection input.

According to an aspect of the invention, the selection input comprises input via at least one of input by hot keys, input as established in a CMOS setup, and input by selection buttons as designated.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and/or other aspects and advantages of the present invention will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompanying drawings of which:

FIG. **1** is a schematic diagram of a computer system, according to an embodiment of the present invention;

FIG. **2** is a control block diagram of the computer system shown in FIG. **1**, according to an embodiment of the present invention; and

FIG. **3** is a flow chart of controlling the computer system of FIG. **2**, according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference will now be made in detail to the embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout. The embodiments are described below in order to explain the present invention by referring to the figures.

FIG. **1** is a schematic diagram of a notebook (portable) computer connected to a docking station, as an example of a computer system, according to the present invention. As shown in FIG. **1**, the computer system comprises a main computer body as a main system **1**, assembled to an LCD part by a hinge, and in which a central processing unit (CPU), a video chip, a sound card, a hard disk (data storage) of a small capacity, all of which are not shown, and a speaker **10** are installed. The main system **1** is provided with a docking port (not shown) on an outer rear plate surface thereof, and a docking station **3** is detachably mounted by the docking port (not shown) on the main system **1**. Typically, the docking station **3** is an auxiliary system supporting/expanding a multimedia function and an expansion function of the data storage device, of the main system **1**. Within the docking station **3** is installed a speaker **12** sufficiently large in diameter to output low-pitched sound, in addition to an additional hard disk drive and optical reading/writing devices, such as CD-ROM/RW/DVD and so on, (not shown) for expanding the data storage and the multimedia function of the main system **1**.

FIG. **2** is a control block diagram of the computer system shown in FIG. **1** according to an embodiment of the present invention. The main system **1** comprises an input unit **32** with which the user is allowed to input a selection of filters, an audio signal generating unit **20** generating audio signals, a main audio amplifier **22** amplifying audio signals generated from the audio signal generating unit **20**, and an audio signal transmitting unit **36** transmitting the audio signals to the docking station **3**.

The main system **1** further comprises a band pass filter (BPF) **26** passing only a designated frequency band of the audio signals amplified through the main audio amplifier **22**, thereby providing a mean sound, and a high pass filter (HPF) **28** passing only signals of high frequency. A switching unit **44** can switch between the BPF **26** and the HPF **28**, for example, according to a user selection input through the input unit **32** while the docking station **3** is connected to the main system **1**. Therefore, in response to an input selection, the switching unit **44** allows the audio signals to pass

through either the BPF **26** or the HPF **28** to be supplied to a main audio outputting unit **10**, which typically is a speaker unit.

The docking station **3** as an auxiliary system is a station body connected to the main system **1**. The docking station **3** comprises an audio signal inputting unit **38** receiving an input of the audio signals of the main system **1**, an auxiliary audio amplifier **40** amplifying the audio signals input from the audio signal inputting unit **38**, a low pass filter (LPF) **42** passing only signals of low frequency from among the amplified audio signals, and an auxiliary audio outputting unit **12**, which is typically a speaker unit, outputting the filtered audio signals.

The audio signal generating unit **20** processes digital sound data input through an input channel (not shown), and the processed digital sound data is supplied to the main audio amplifier **22** after being converted into analog signals through a codec (not shown). The audio signals amplified through the main audio amplifier **22** pass via the switching unit **44** through either the BPF **26** or the HPF **28** and then output through the speaker **10** as the main audio outputting unit **10**. If the docking station **3** is connected to the main system **1**, typically the audio signals generated from the audio signal generating unit **20** are also transmitted to the docking station **3** through the audio signal transmitting unit **36**.

The docking station **3** receives the audio signals output by the main system **1** through the audio signal inputting unit **38**. The received audio signals by the docking station **3** are amplified through the auxiliary audio amplifier **40** and then supplied to the LPF **42**. The LPF **42** allows only the audio signals of a low frequency to pass, outputting the low frequency audio signals to the speaker **12** as the auxiliary audio outputting unit **12**. Through these processes, low-pitched sound is output at the docking station **3**.

Accordingly, in contrast to the docking station **3**, the main system **1** can output mean sound or high-pitched sound because of the BPF **26** and the HPF **28**. The BPF **26** is a filter passing only ingredients of a pass band frequency as wide as a band width desired by the user, thereby passing a mean sound of audio signals amplified through the main audio amplifier **22**. On the other hand, the HPF **28** is a filter passing only signals beyond a desired cut-off frequency, thereby passing only a high-pitched sound of the audio signals. The BPF **26** and the HPF **28** may be constructed with a resistor (resistance), a capacitor (capacitance) and so on, as hardware units, which may be realized with the use of any software for that purpose.

According to the invention, the BPF **26** and the HPF **28** can be selectively switched by the switching unit **44**. The switching unit **44** comprises a switch **24** selectively switching the BPF **26** or the HPF **28**, a sensing unit **34** sensing a connection of the docking station **3** to the computer body **1**, and a controller **30** controlling the switch **24** according to an input selection, for example, a selection input by a user through the input unit **32** while the docking station **3** is connected to the computer body **1**.

The switch **24** switches in response to a control signal from the controller **30**. According to an aspect of the present invention, the switch **24** comprises an electronic switch, such as a transistor. According to the switching operation by the switch **24**, the main system **1** can selectively output the mean sound or the high-pitched sound via the BPF **26** and the HPF **28**, respectively.

The sensing unit **34** is a sensor sensing the connection of the docking station **3** to the computer body **1**. Typically, the docking port (not shown) provided in the computer body **1** performs sensing functions as the sensing unit **34**. That is, the docking port of the computer body **1** generates a connection sensing signal (connection signal) sensing connection when the docking station **3** is connected to the docking port. The controller **30** determines whether the docking station **3** is connected to the docking port according to the connection sensing signal generated by the sensing unit **34**. If it is determined that the docking station **3** is connected to the computer body **1**, the controller **30** controls the switch **24** according to an input selection signal, for example, a selection input by a user through the input unit **32** to switch audio signal filtering between either the BPF **26** or the HPF **28** to output either a mean sound or a high-pitched sound, respectively. As a result, for example, the high-pitched sound can be selectively output at the main system **1**, thereby complementing the low frequency audio signals (low-pitched sound) output at the docking station **3**.

If it is determined that the docking station **3** is not connected with the docking port of the computer body **1**, the controller **30** controls the switch **24** to switch audio signal filtering to the BPF **26**. As a result, the audio signals having the mean sound are output to the main audio outputting unit **10** as generally output in a conventional notebook computer system not connected to a docking station.

According to an aspect of the present invention, the controller **30** is a logic element logically operating the connection sensing signal by the sensing unit **34** and the selection signal input by the user, and outputting a control signal to the switch **24**. For example, if the connection sensing signal and an input HPF selection signal by the user are signals of LOW_ACTIVE, the controller **30** may be constructed so that a LOW signal is output to the switch **24** using a logic element, such as an OR gate. In particular, the switch **24** is constructed to receive the LOW signal by the OR gate, thereby selecting the HPF **28** to output a high-pitched sound.

According to an aspect of the present invention, the input unit **32** comprises a keyboard, a mouse or a touch pad of the computer system, or buttons inputting a selection as provided in the computer body **1** or the docking station **3**. As any selection is input through the input unit **32**, either the BPF **26** or the HPF **28** is selected, thereby providing an audio-signal frequency selection. According to an aspect of the invention, the audio-signal frequency selection can be made via hot keys on the keyboard. In addition, any audio-signal frequency selection may be established as a DEFAULT CMOS setup and/or setup by the user on a display for the CMOS setup, or input by pressing selection buttons separately provided.

According to the present invention, if the docking station **3** is connected to the main system **1**, the low-pitched sound is output in the docking station **3** and the mean sound, or the high-pitched sound, can be selectively output in the main system **1**. Therefore, the computer system according to the present invention overcomes the limitation of conventional computer systems unable to output an available high-pitched sound when using an auxiliary sound expanding system.

FIG. **3** is a flow chart of controlling the computer system shown in FIG. **2**, according to an embodiment of the present invention. At operation **50**, the controller **30** of the main system **1** receives a connection signal, sensing a connection of the docking station **3**, from the sensing unit **34** and determines whether the docking station **3** has been connected. If, at operation **50**, it is determined that the docking station **3** is connected to the main system **1** of the computer system, at operation **52**, the controller **30** receives a signal corresponding to a selection, for example, a selection input

by a user through the input unit **32**, and determines whether the signal selects the HPF **28**. If, at operation **52**, the HPF **28** is selected, at operation **54**, the high-pitched sound is output through the main audio outputting unit **10** and the low-pitched sound is output via the LPF **42** through the auxiliary audio outputting unit **12**, according to the connection signal sensing the connection of the docking station **3** and the input selection signal selecting the HPF **28**. If, at operation **52**, the HPF **28** is not selected, at operation **56**, although the connection of the docking station **3** to the main system **1** has been sensed, the mean sound and the low-pitched sound are output via the output units **10** and **12**, respectively, as in a conventional computer system with a connected docking station having a sound expansion function.

However, if, at operation **50**, it is determined that the docking station **3** has not been connected to the main system **1**, at operation **58**, the mean sound is output through the main audio outputting unit **10** as in a conventional computer system not using a docking station

With the computer system of the present invention, the user can selectively listen to either the mean sound or the high-pitched sound according to a selection signal input by the user, if the main body of the computer system is connected to the docking station. In the above-described embodiment, although the first filter is the BPF **26**, the second filter is the LPF **42** and the third filter is the HPF **28**, the present invention is not limited to such a configuration, and, for example, the first to third filters are interchangeable between the main computer body and the docking station of the computer system, and other audio signal filter configurations with corresponding switches can be provided, as desired according to application. For example, in the above-described embodiment, although the BPF **26** and the HPF **28** are selectively switched in the main system **1**, it is possible to construct an auxiliary system **3** wherein the BPF **26** and the HPF **28** are selectively switched therein. Otherwise, the HPF **28** and the LPF **42** can also be selectively switched by providing the HPF **28** in the auxiliary system **3**.

Further, although in the embodiment described above, the docking station **3** is connected to the computer body **1** and the switch switches to the third filter in response to a selection input by the user, according to an aspect of the invention, the switch can automatically switch to the third filter once the docking station **3** is connected to the computer body **1**. If the docking station **3** is connected to the main computer body **1**, typically the audio signal filters as embodied in software pass different frequency bands of audio signals, as established by the user. Further, in the above-described embodiment, although the audio filters respectively passing different frequency bands are separate from the speaker, the present invention is not limited to such a configuration and the audio filters may be replaced with speakers passing different frequency bands.

Further in the embodiment described above, although the controller **30** is a logic element, the controller **30** can be a microcomputer (i.e., a programmed processor) controlling the switch **24** according to the connection signal sensing the connection of the docking station **3** and the selection signal input by the user. The above embodiment has been described in connection with a docking station, which as an auxiliary system to the main computer body **1**, may comprise any auxiliary component, such as expansion ports, such as an UltraBase, and so on.

The computer system according to the present invention can selectively output audio signals in different frequency bands by allowing the audio filters passing different frequency bands to be selectively switched, for example, as desired by a user, or according to a pre-set configuration. More particularly, the present invention is directed to a computing device having a main system, an auxiliary system in communication with the main system and a switching unit controlling generated audio signals to pass through a plurality of selectable filters filtering the audio signals within a frequency band and to supply the selected filtered audio signals to a main audio outputting unit of the main system and/or to an auxiliary audio outputting unit of the auxiliary system, depending upon whether the auxiliary system is connected to the main system. The switching unit may be provided in either the main system or the auxiliary system depending upon application. Accordingly, the present invention provides a computer system, comprising a main audio system processing sound, an auxiliary audio system processing sound when in communication with the main audio system, a plurality of selectable filters in the main and the auxiliary audio systems and filtering generated audio signals within respective frequency bands, and a switch allowing the audio signals to pass through the filters to supply the selected filtered audio signals to the main audio system and/or to the auxiliary audio system, depending upon whether the auxiliary audio system is communicating with the main audio system. In particular, the switch further comprises a sensor sensing whether the auxiliary audio system is communicating with the main audio system, a plurality of filters in the main and the auxiliary audio systems and filtering generated audio signals within respective frequency bands, and a controller controlling input to the filters in response to the sensor and input filter selection to control sound output according to the filter selection at the main and auxiliary audio systems.

Although a few embodiments of the present invention have been shown and described, it will be appreciated by those skilled in the art that changes may be made in these embodiments without departing from the principles and spirit of the invention, the scope of which is defined in the appended claims and their equivalents.

What is claimed is:

1. A computer system including a main system having an audio signal generating unit generating audio signals, a main audio outputting unit in communication with the main system and outputting the generated audio signals, an auxiliary system connected to the main system and receiving the generated audio signals, and an auxiliary audio outputting unit in communication with the auxiliary system and outputting the generated audio signals received in the auxiliary system, the computer system comprising:

a first filter provided in the main system, filtering the audio signals generated in the audio signal generating unit and supplying only a first frequency band as designated to the main audio outputting unit;

a second filter provided in the auxiliary system, filtering the audio signals generated in the audio signal generating unit and supplying a second frequency band different from the first frequency band to the auxiliary audio outputting unit;

a third filter provided in either of the main system or the auxiliary system, filtering the audio signals generated from the audio signal generating unit and supplying a third frequency band different from the first and the second frequency bands to either of the main audio outputting unit or the auxiliary audio outputting unit; and

a switching unit switching the audio signals to selectively pass through either the first filter or the third filter and be supplied to the main audio outputting unit, and to

selectively pass through either the second filter or the third filter and be supplied to the auxiliary audio outputting unit, depending upon whether the auxiliary system is connected to the main system.

2. The computer system according to claim **1**, wherein the first filter is a band pass filter (BPF), the second filter is a low pass filter (LPF) and the third filter is a high pass filter (HPF).

3. The computer system according to claim **1**, wherein the switching unit comprises:

a switch performing the switching;

a sensing unit sensing whether the auxiliary system is connected to the main system; and

a controller controlling the switch so that the third filter is connected to either the main audio outputting unit or the auxiliary audio outputting unit, depending upon whether the auxiliary system is connected to the main system according to the sensing unit.

4. The computer system according to claim **3**, wherein the controller controls the switch so that the third filter is connected to either the main audio outputting unit or the auxiliary audio outputting unit, depending upon whether an audio signal frequency band selection is input in a state indicating that the auxiliary system is connected to the main system according to the sensing unit.

5. The computer according to claim **4**, wherein the controller is a logic element locally operating in response to a connection sensing signal by the sensing unit and the input audio signal frequency band selection.

6. The computer system according to claim **4**, wherein the audio signal frequency band selection is input via at least one of keyboard hot keys, a CMOS setup, and selection buttons.

7. The computer system according to claim **2**, wherein the switching unit comprises:

a switch performing the switching;

a sensing unit sensing whether the auxiliary system is connected to the main system; and

a controller controlling the switch so that the third filter is connected to either the main audio outputting unit or the auxiliary audio outputting unit, depending upon whether the auxiliary system is connected to the main system according to the sensing unit.

8. The computer system according to claim **7**, wherein the controller controls the switch so that the third filter is connected to either the main audio outputting unit or the auxiliary audio outputting unit, depending upon whether an audio signal frequency band selection is input in a state indicating that the auxiliary system is connected to the main system according to the sensing unit.

9. The computer according to claim **8**, wherein the controller is a logic element locally operating in response to a connection sensing signal by the sensing unit and the input audio signal frequency band selection.

10. The computer system according to claim **8**, wherein the audio signal frequency band selection is input via at least one of keyboard hot keys, a CMOS setup, and selection buttons.

11. A computer system, comprising:

a main audio system processing sound;

an auxiliary audio system processing sound when in communication with the main audio system;

a plurality of selectable filters in the main and the auxiliary audio systems and filtering generated audio signals within different respective frequency bands for each of the plurality of the selectable filters to be supplied to the main and auxiliary audio systems; and

a switch controlling the audio signals to pass through selected filters to supply selected filtered audio signals to the main audio system and/or to the auxiliary audio system, depending upon whether the auxiliary audio system is communicating with the main audio system.

12. The computer system of claim **11**, wherein the filters comprise a band pass filter (BPF), a low pass filter (LPF) in the auxiliary system, and a high pass filter (HPF), and wherein the BPF and the HPF are provided interchangeably in the main audio and/or the auxiliary audio systems and the switch controls the audio signals to pass through the LPF and the HPF depending upon whether the auxiliary audio system is communicating with the main audio system.

13. The computer system of claim **11**, wherein the auxiliary audio system is provided in a docking station for the computer system.

14. An audio signal frequency band switch unit in a computer having a main audio system and an auxiliary audio system, the switch unit comprising:

a sensor of the switch unit sensing whether the auxiliary audio system is communicating with the main audio system;

a switch of the switch unit for switching

a plurality of filters in the main and the auxiliary audio systems and filtering generated audio signals within different respective frequency bands for each of the plurality of the selectable filters to be supplied to the main and auxiliary audio systems; and

a controller of the switch unit controlling input to the filters, in response to the sensor and input filter selection to control sound output according to the filter selection at the main and auxiliary audio systems.

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